1st Edition

A TO Z OF SUSTAINABILITY

teri | Council for Business Sustainability

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Published by

TERI Press
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Darbari Seth Block,
IHC Complex, Lodhi Road
New Delhi - 110003

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Printed in India at New Delhi

A to Z of Sustainability

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MESSAGE FROM THE DESK OF TERI CBS CO-CHAIR

Mahendra Singhi

Group CEO and Whole Time Director,
Dalmia Cement (Bharat) Limited

Sustainability must become an integral part of the business strategy as clean and green is the most profitable and sustainable way to carry out the business operations. A long-term commitment to improve positive business impacts for the betterment of people, profit and the planet is the core of the sustainable business strategy for an increasingly connected world with shared responsibilities. The international agreements such as the Sustainable Development Goals and the Paris Climate Agreement are further bringing the governments, businesses, and society together to eradicate the most pertinent challenges being faced by the humanity. One of such challenge is creating awareness on sustainability.

The *A to Z of Sustainability* is one of the endeavours from TERI Council for Business Sustainability in this direction. It provides a repository of words and phrases—comprising a range of environmental, social, and economic topics that could be useful and contemporary and useful for professionals dealing with the domain of sustainability.

I urge leaders and colleagues from the industry—within the network of our Council and beyond to use this repository as a ready-reckoner for daily use.

PREFACE

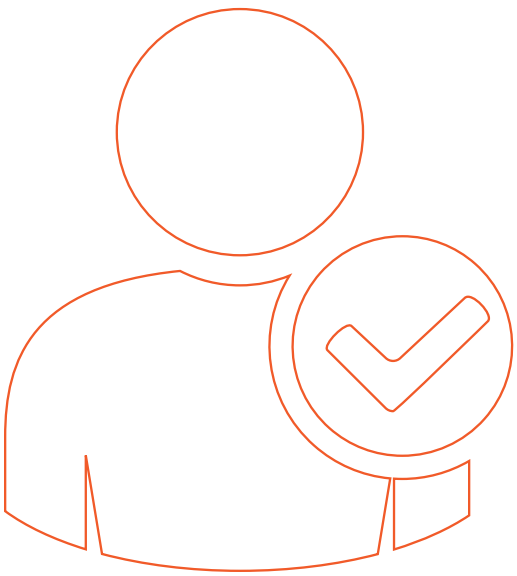
Ambassador Ajai Malhotra

Distinguished Fellow &
Senior Adviser (Climate Change), TERI

The concept of sustainability has increasingly been incorporated into a very wide range of concerns that deeply matter to so many of us. From protecting our planet, its life forms and its finite land, natural resources, to securing the collective interests of present and future generations, to manufacturing healthy and environmentally sound products—its traces can now be seen practically everywhere. Terminology pertaining to this comparatively new domain can now be encountered in ever-increasing abundance in Annual Reports, BRR, CSR Reports, Integrated Reports, and Sustainability Reports, besides in their official communications. Importance of promoting and achieving sustainability lies in appreciating the precise meaning of sustainability-related terms in different contexts and helping users better articulate such terms.

The *A-Z of Sustainability* booklet presents a glossary of commonly used sustainability terms encompassing a range of contemporary environmental, social, economic and governance topics that could be useful for sustainability professionals as well as the lay person. I commend the TERI CBS team for putting together the first edition of this repository and join in inviting readers to propose additional terms and phrases for incorporating in and enriching its future editions.

A



ACCOUNTABILITY

Accountability is one of the key principles of corporate governance. It ensures the company is (i) working in accordance with the agreed rules and standards and (ii) reporting fairly and accurately on performance results vis-à-vis mandated roles and/or plans. It also confirms the liability of the individual who takes a decision for the interest of others, thus making the individual accountable to all the corporate stakeholders. The accountability is not just restricted to the shareholders or the company; it is also for society and the environment at large [1].

AIR QUALITY INDEX

The air quality index (AQI) is a tool for effectively communicating the air-quality status to the people in ways that are easy to understand. It transforms complex air-quality data of various pollutants into a single number (an index value), nomenclature, and colour.

There are six AQI categories, namely, good, satisfactory, moderately polluted, poor, very poor, and severe. Each category is decided based on ambient concentration values of air pollutants and their likely health impacts (known as health breakpoints). The AQ sub-index and health breakpoints are evolved for eight pollutants (PM_{10}, $PM_{2.5}$, NO_2, SO_2, CO, O_3, NH_3, and Pb) for which short-term (upto 24 hours) National Ambient Air Quality Standards are prescribed.

The Central pollution Control Board is calculating the sub-indices for individual pollutants at various monitoring locations all over India using its 24-hourly average concentration value (8-hourly in case of CO and O_3) and health breakpoint concentration range. The worst sub-index is the AQI for that location [2].

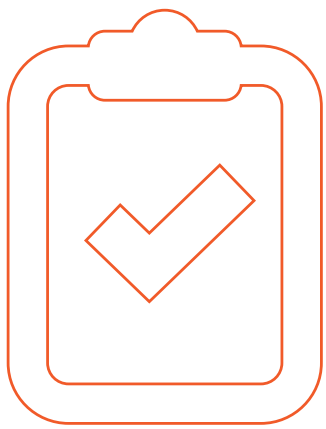
ASSURANCE

In the sustainability domain, assurance is associated with a company's sustainability report. It is defined by the (i) availability of accurate and current information, especially through management, to its stakeholders, (ii) the efficiency and effectiveness of its policies and operations, and (iii) the status of its compliance with statutory obligations.

Corporates use either the ISAE 3000 or AA1000AS assurance standard for their sustainability reports. Taking the case of materiality [3], the ISAE 3000 'requires the practitioner to understand and assess what factors might influence the decisions of the intended users', while the AA1000AS (2008) considers 'a topic, concern or impact material if it could influence the decisions and behaviour of stakeholders or the organisation itself' [4].

References

1. Adapted from UNDP accountability framework.
2. For more information, visit http://cpcb.nic.in/national-air-quality-index/.
3. For definition of materiality, please see page 62.
4. Adapted from AccountAbility and various sources.



B

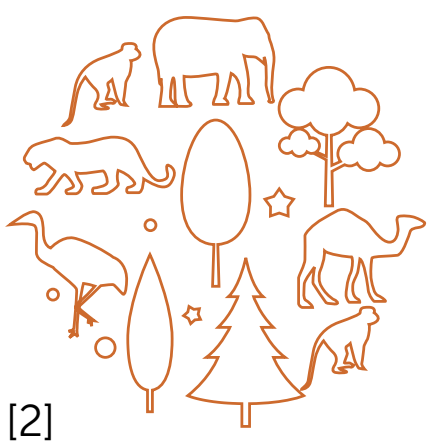
BIODIVERSITY OFFSET

Biodiversity offset are conservation actions intended to compensate for the residual, unavoidable harm to biodiversity caused by development projects, so as to ensure no net loss of biodiversity [1].

The Business and Biodiversity Offsets Programme (BBOP) is an international collaboration between companies, financial institutions, government agencies, and civil society organizations to develop the best practices in following the mitigation hierarchy (avoid, minimize, restore, offset) to achieve no net loss or a net gain of biodiversity.

The 10 principles of the BBOP are as follows:

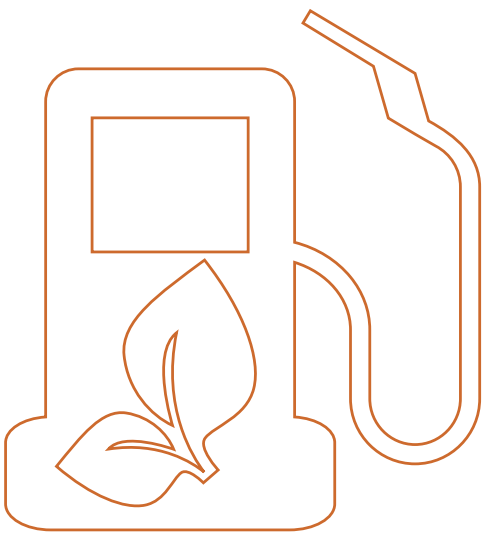
1. Adherence to the mitigation hierarchy
2. Limits to what can be offset
3. Landscape context
4. No net loss
5. Additional conservation outcomes
6. Stakeholder participation
7. Equity
8. Long-term outcomes
9. Transparency
10. Science and traditional knowledge [2]



Use Case

In its Sustainable Development Ambitions 2030, Ambuja Cement targets to achieve 'Positive Change in Biodiversity by 2030', which is aligned with LafargeHolcim's new Quarry Rehabilitation and Biodiversity Directive. It has initiated a new baseline biodiversity assessment of our sites through the Biodiversity Indicator and Reporting System (BIRS) developed by the International Union for Conservation of Nature (IUCN) experts.

Ambuja Cement is a signatory to the declaration of the India Business and Biodiversity Initiative (IBBI), an initiative of the Confederation of Indian Industry (Oil). In 2016, the company voluntarily reported against the IBBI Declaration Commitments (comprehensive). This reporting covered their biodiversity mapping, relevance of biodiversity and ecosystem services in various phases of their value chain (operations, suppliers, use phase, end-of-life, transport), training and awareness activities for biodiversity protection, risks, opportunities, impacts, and so on [3].



BIOFUEL

Biofuels are liquid or gaseous fuels produced from the biodegradable fraction of products, wastes, and residues from agriculture, forestry, and related industries as well as the biodegradable fraction of industrial and municipal wastes. They are used in place of, or in addition to, diesel, petrol, or other fossil fuels for transport, stationary, portable and other applications. Examples of biofuels are bioethanol, biodiesel, biomethanol, and biosynthetic fuels [4].

BIOREMEDIATION

Bioremediation is the use of biological processes and biodiversity for mitigation (and wherever possible, complete elimination) of the noxious effects caused by environmental pollutants in a given site. It is used to clean up contamination in soil, water, or subsurface material. There are six major mechanisms associated with bioremediation: (i) phytosequestration, (ii) rhizodegradation, (iii) phytodegradation, (iv) phytohydraulics, (v) phytoextraction, and (vi) phytovolatilization.

Typical organic contaminants ('organics'), such as petroleum hydrocarbons, gas condensates, crude oil, chlorinated compounds, pesticides, and explosive compounds can be remediated using bioremediation. The typical inorganic contaminants ('inorganics') that can be addressed include salts (salinity), heavy metals, metalloids, and radioactive materials [5].

Use Case

The use of bioremediation can be seen in aluminium industry. The red mud or bauxite residue poses serious environmental problems as it is highly caustic with a pH in the range of 10.5–12.5. It is being neutralized by using the bioremediation technique so as to make it reusable.

References

1. Adapted from Convention on Biological Diversity (CBD).
2. For more information, visit http://bbop.forest-trends.org/documents/files/bbop_principles.pdf; http://bbop.forest-trends.org/.
3. Ambuja Cement Sustainability Report, 2017.
4. For more information, visit https://mnre.gov.in/file-manager/UserFiles/biofuel_policy.pdf.
5. For more information, visit http://www.moef.nic.in/downloads/public-information/BioremediationBook.pdf.

C

CARBON NEUTRAL

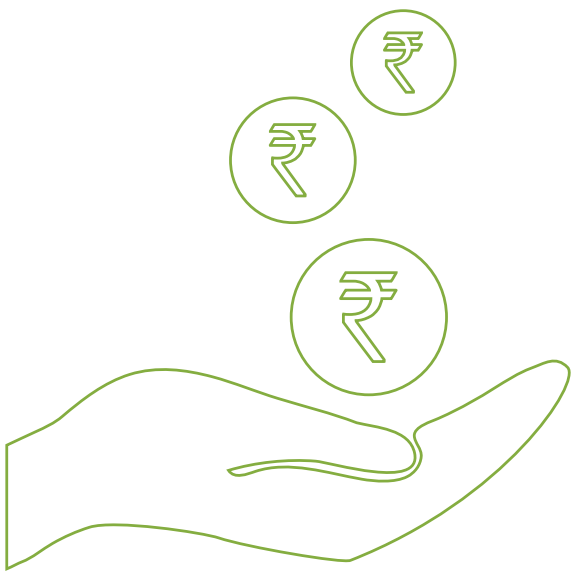
To have achieved net zero greenhouse gas emissions (GHG) for a specified set of emission sources by balancing a measured amount of GHG emissions with an equivalent amount sequestered or offset [1].

First Indian Carbon-Neutral Town: Meenangadi village in Kerala's Wayanad district

First Indian Carbon-Neutral Company: Mahindra & Mahindra, in 2018, announced its commitment to become a carbon-neutral company by 2040.

India's First Carbon-Neutral Film: *Aisa Yeh Jahaan*, directed by Biswajeet Bora

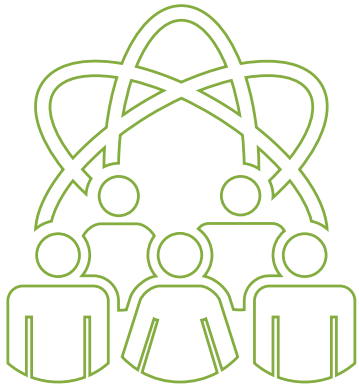
Emission Cut Targets by India Inc.: 38 companies out of the BSE 200 index have reported their targets.



CARBON BUDGET

Carbon budget is the amount of carbon dioxide emissions we can emit while still having a likely chance of limiting global temperature rise to 2 °C above the pre-industrial levels [2].

Basis the IPCC's new Special Report 15, the budget for a 66% avoiding of 1.5 °C warming is 420GtCO_2—or 10 years of current emissions. Similarly, the budget for a 50/50 chance of exceeding 1.5 °C is 580GtCO_2—14 years of current emissions [3].



CORPORATE SOCIAL RESPONSIBILITY

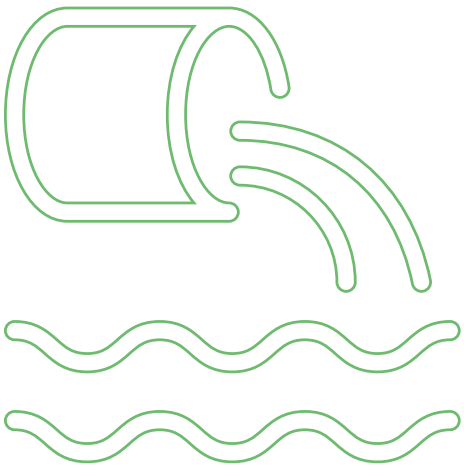
According to Section 135 of the Corporate Social Responsibility Act, every company having net worth of ₹500 crore or more, or turnover of ₹1,000 crore or more, or a net profit of ₹5 crore or more during any financial year shall constitute a Corporate Social Responsibility Committee of the Board consisting of three or more directors, of which at least one shall be an independent director. The committee shall formulate and recommend a Corporate Social Responsibility Policy to the board, which indicates the activities to be undertaken by the company as specified in Schedule VII [4].

The Ministry of Corporate Affairs (MCA) issued the National Voluntary Guidelines on Social, Environmental & Economic Responsibilities of Business (NVGs) 2011 as the revised version of the CSR (Corporate Social Responsibility) Voluntary Guidelines 2009. With the change in the global business environment, the MCA is now in the process of updating these NVGs and renaming them as National Guidelines (NGs).

References

1. For more information, visit https://www.carbonneutral.com/interface/files/aboutus/qualityassurance/The%20CarbonNeutral%20ProtocolMay2011.pdf.
2. For more information, visit https://www.wri.org/ipcc-infographics.
3. Adapted from The Intergovernmental Panel on Climate Change (www.ipcc.ch).
4. For more information, visit http://www.mca.gov.in.

D



DISCHARGE

Discharge is the act of releasing a liquid, gas, or other substance from where it has been confined. Discharge may be to surface water, such as rivers or the ocean, or to groundwater that lies beneath the earth's surface.

The most significant discharge types for the environment include discharge of wastewater and chemicals into waterbodies or air.

DISCLOSURE

Disclosure in the sustainability context is defined as the practice of reporting contextual information about an organization and its sustainability reporting practices while being accountable to internal and external stakeholders. This practice helps stakeholders understand the nature of the organization and its economic, environmental, and social impacts.

Disclosure of a company in aspects, such as economics, environmental, and social aspects in the Sustainability Report have a significant influence on stakeholders and the company's market performance [1].

DISPOSAL

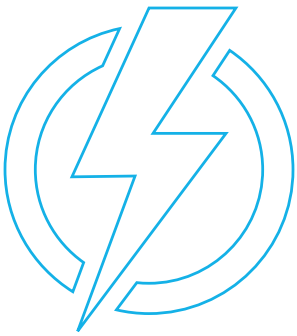
Disposal is any operation which does not lead to recycling, recovery or reuse and includes physico-chemical or biological treatment, incineration, and deposition in a secured landfill.

Waste disposal is a major issue in India as untreated waste contributes to soil and water contamination affecting health and the environment, if not handled properly. It also requires the availability of large spaces of land for landfill. Co-processing of waste can eliminate the problems related to the emission of greenhouse gases and liquid effluents.

The cement sector across the globe significantly contributes towards sustainable waste management practices. UltraTech Cement is supporting several municipal corporations across India in eliminating municipal solid waste (MSW) by burning the waste in cement kilns at its manufacturing units [2].

References

1. Adapted from GRI G3 Guidelines.
2. Adapted from Waste Management Rules, 2016, and various other sources.



ESCOs

Energy service companies (ESCOs) offer energy services, usually design, retrofitting, and implementation of energy-efficiency projects. ESCOs do so after identifying energy-saving opportunities through the energy audit of the existing facilities, energy infrastructure outsourcing, power generation and energy supply, financing or assist host entities in arranging finances for energy efficiency projects by providing a savings guarantee, risk management in the implementation of the energy efficiency projects and also perform measurement and verification (M&V) activities to quantify actual energy savings post implementation of energy efficiency projects.

A total of 141 ESCOs have been empanelled by the Bureau of Energy Efficiency (BEE). The energy efficiency market in India is estimated to be worth ₹150,000 crore, of which only 5% potential has been tapped by ESCOs so far.

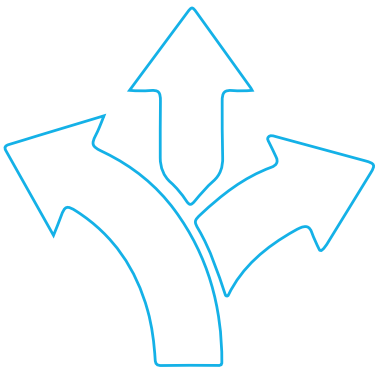
ENTERPRISE RISK MANAGEMENT

As defined by the Committee of Sponsoring Organizations (COSO), enterprise risk management is a process effected by an entity's board of directors, management, and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, and to provide reasonable assurance regarding the achievement of entity objectives.

Key Compliance Requirements

Section 134: The board of directors report must include a statement indicating development and implementation of a risk-management policy for the company, including the identification of risk elements, if any, which in the opinion of the board may threaten the existence of the company.

Section 177(4): Every Audit Committee shall act in accordance with the terms of reference specified in writing by the Board which shall, inter alia, include evaluation of internal financial controls and risk management systems [1].



EXPOSURE PATHWAYS

An exposure pathway refers to the way a person can come into contact with a hazardous substance. There are three basic exposure pathways: inhalation, ingestion, or direct contact.

The degree or extent of exposure is determined by measuring the amount of the hazardous substance at the point of contact.

The common ways in which people can become exposed to hazardous substances include: (i) groundwater and surface water; (ii) soil, sediment, and dust; (iii) air; and (iv) food [2].

References

1. Adapted from COSO and New Companies Act, 2013.
2. For more information, visit https://www.epa.gov/emergency-response/possible-exposure-pathways-during-emergencies.

FOOTPRINT

Footprint is an assessment of humanity's dependence on natural resources in terms of the area of biologically productive land and water required to produce the goods consumed and to assimilate the wastes generated.

The four types of environmental footprints are carbon, fossil energy, land, and water [1].

Water footprint is the measure of humanity's appropriation of fresh water in volumes of water consumed and/or polluted.

Carbon footprint is the measure of greenhouse gases produced to directly and indirectly support human activities, usually expressed in equivalent tonnes of carbon dioxide (CO_2).

Land footprint is the total amount of land that is used to produce a product or service. It is also a consumption indicator that can be used to monitor the sustainability of products.

Energy footprint is the measure of their energy consumption, aspects of energy use, and substantial energy end-use.

FREEDOM OF ASSOCIATION

The Freedom of Association is the right of workers and employers to form or join organizations of their own choice. The key International Labour Organization standards addressing the freedom of association are the Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87) and the Right to Organise and Collective Bargaining Convention, 1949 (No. 98) [2].

FUGITIVE EMISSIONS

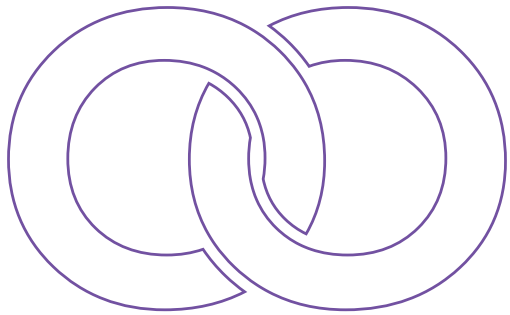
Fugitive emissions are unintended emissions which become airborne by natural or man-made activities which could not reasonably pass through a stack, chimney, vent, or other functionally-equivalent opening. Fugitive emissions generally escape to the atmosphere at various points, such as through windows, doors, roof ventilators, and so on, but not through a primary exhaust system, such as a stack, flue, or a control device.

Examples of fugitive emissions are dust, fine particles, and aerosols from sources such as quarries, storage piles, leaks or releases from valves, pumps, compressors, and flanges. Methods of controlling fugitive particulate emissions include enclosures, water spray, chemical dust suppressants, windscreens, vegetative barriers, sweeping paved roads, paving roads, covering open trucks, etc. [3].

References

1. Adapted from various sources.
2. For more information, visit https://www.ilo.org/global/standards/subjects-covered-by-international-labour-standards/freedom-of-association.
3. EPA and the Air (Prevention and Control of Pollution) Act, 1981.

GREEN INVESTMENTS/ GREEN BONDS



Green bonds were created to fund projects that have positive environmental and/or climate benefits. The majority of the green bonds issued are green 'use of proceeds' or asset-linked bonds. Proceeds from these bonds are 'earmarked' for green projects but are backed by the issuer's entire balance sheet. There have also been green 'use of proceeds' revenue bonds, green project bonds, and green securitized bonds [1].

Info

First green bond issued in India: by YES Bank Limited (2015) for ₹1,000 crore

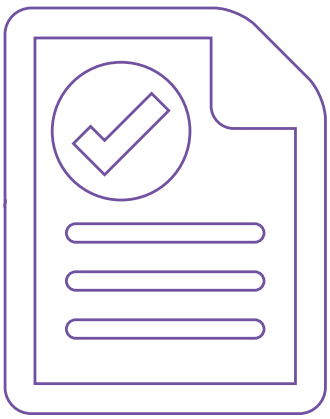
Second green bond: by CLP India for ₹600 crore for its wind portfolio

India's first certified climate bond issue: Hero Future Energies—₹300 crore

First internationally certified green bond issue: Axis Bank Limited—$500 million

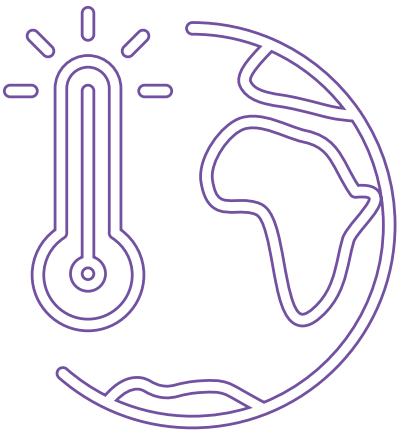
GRIEVANCE REDRESSAL

Grievance redressal is a mechanism for any stakeholder to individually or collectively raise and resolve reasonable concerns affecting them without impeding access to other judicial or administrative remedies. The mechanism should be (i) clear, transparent, and have independent governance structures; (ii) accessible; (iii) predictable; (iv) equitable;and (v) based on dialogue and mediation [2].



GLOBAL REPORTING INITIATIVE

The Global Reporting Initiative (GRI) is an independent international organization that has pioneered sustainability reporting since 1997. The GRI has developed Sustainability Reporting Guidelines that strive to increase the transparency and accountability of economic, environmental, and social performance and provides all companies and organizations with a comprehensive sustainability reporting framework that is widely used around the world. The GRI Sustainability Reporting Standards (GRI Standards) are the first and the most widely adopted global standards for sustainability reporting.



GLOBAL WARMING POTENTIAL

Global warming potential (GWP) is an index based on radiative properties of greenhouse gases, measuring the radiative forcing following a pulse emission of a unit mass of a given greenhouse gas in the present-day atmosphere integrated over a chosen time horizon, relative to that of carbon dioxide. The GWP represents the combined effect of the differing times these gases remain in the atmosphere and their relative effectiveness in causing radiative forcing. The Kyoto Protocol is based on GWPs from pulse emissions over a 100-year time frame [3].

GWP relative to CO_2 at different time horizons for various greenhouse gases

Gas name	Chemical formula	20 yr	100 yr	500 yr
Carbon dioxide	CO_2	1	1	1
Methane	CH_4	72	25	7.6
Nitrous oxide	N_2O	289	298	153
CFC-12	CCl_2F_2	11,000	10,900	5,200
HCFC-22	$CHClF_2$	5,160	1,810	549
Tetrafluoromethane	CF_4	5,210	7,390	11,200
Hexafluoroethane	C_2F_6	8,630	12,200	18,200
Sulphur hexafluoride	SF_6	16,300	22,800	32,600
Nitrogen trifluoride	NF_3	12,300	17,200	20,700

References

1. For more information, visit https://www.climatebonds.net.
2. Adapted from Final Draft ISO 26000 and www.epaw.co.uk/csr/grievance.html.
3. Adapted from IPCC (AR5) and Environmental Pollution.

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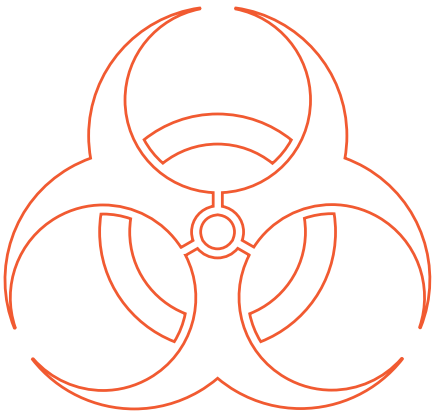


HAZMATS

Any material (solid, semi-solid, or non-aqueous liquid) can be classified as hazardous material (hazmat), if it can, because of its quantity, concentration or characteristics in terms of physical, chemical, infectious quality, can cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitate reversible illness, or pose a substantial present or potential hazard to human health or the environment when it is improperly treated, stored, transported, disposed of, or otherwise managed.

A hazmat, whether alone or when in contact with other wastes or substances, exhibits any of the characteristics, such as corrosivity, reactivity, ignitability, toxicity, explosiveness, acute toxicity, and infectious property [1].

HAZARD AND OPERABILITY STUDY (HAZOP)

HAZOP is a qualitative technique for a structured and systematic examination of a process or operation in order to identify and evaluate problems that may represent risks to personnel or environment or equipment, or prevent efficient operation.

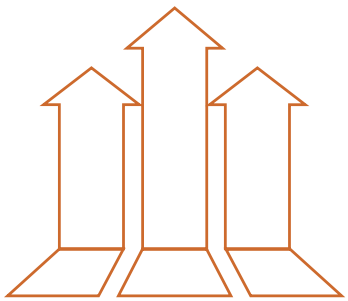
It is a process hazards analysis, first introduced many decades ago by the Imperial Chemical Industries (ICI) of UK. It is used mainly for industries, such as chemical process industries, mining, oil and gas, refining, petrochemical, heavy chemicals, pharmaceuticals, and power sector.

HARASSMENT

Harassment refers to a wide range of offensive behaviour that is unwanted by the recipient and which the perpetuator knows or ought to know is threatening or disturbing. Sexual harassment is most widely understood but harassment can also include untoward behaviour on account of identity, colour, or any such characteristic often specific to a community.

Reference

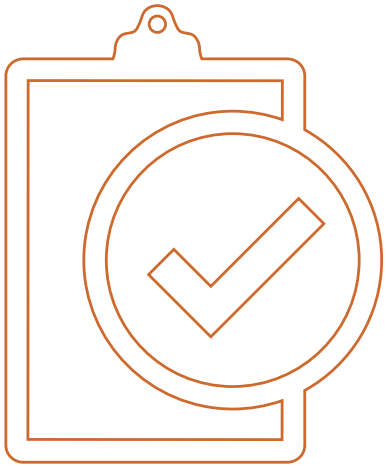
1. Adapted from the MoEF and CPCB websites.



INCLUSIVE GROWTH

Inclusive growth is economic growth that is distributed fairly across society and creates opportunities for all. It raises the pace of growth and enlarges the size of the economy while levelling the playing field for investment and increasing productive employment opportunities [1].

ISO—INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

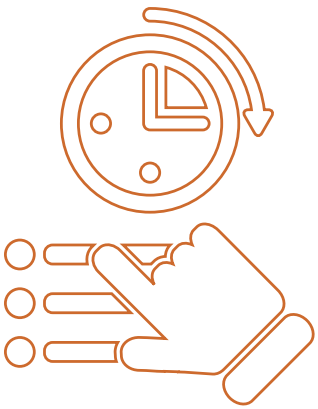


The ISO is an independent, non-governmental international organization with a membership of 162 national standards bodies. Through its members, it brings together experts to share knowledge and develop voluntary, consensus-based, market-relevant international standards that support innovation and provide solutions to global challenges [2].

From India, the Bureau of Indian Standards (BIS) is the member organization of the ISO.

Most widely used standards in sustainability domain are:

ISO 9001 Quality Management
ISO 14000 Environmental Management
ISO 20121 Sustainable Events
ISO 45001 Occupational Health and Safety
ISO 31000 Risk Management
ISO 50001 Energy Management
ISO 26000 Social Responsibility



INTERNALIZATION

In the sustainability context, internalization refers to absorbing by a company, the costs to society and/or the environment of using such resources that are not fully priced. Typically, this is done by valuing the use of these natural and societal resources and incorporating it into the company's financial statements.

The pioneering case of internalization is Puma's Environmental Profit & Loss Account that it first published in 2011, where it put a 'fair' value to the water consumed and greenhouse gas (GHG) emissions across its value chain [3].

IPCC

The Intergovernmental Panel on Climate Change (IPCC), set up in 1988, is the international body for assessing the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation. It currently has 195 members. IPCC Assessment Reports cover the full scientific, technical, and socio-economic assessment of climate change, generally in four parts—one for each of the Working Groups plus a Synthesis Report. Special Reports are assessments of a specific issue. Methodology Reports provide practical guidelines for the preparation of GHG inventories under the UNFCCC.

A special report on the impacts of global warming of 1.5 °C above the pre-industrial levels and related global GHG emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty is available at https://www.ipcc.ch/report/sr15/.

Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation is available at https://wg1.ipcc.ch/srex/.

INTEGRATED REPORT

An integrated report is a concise communication about how an organization's strategy, governance, performance, and prospects, in the context of its external environment, lead to the creation of value in the short, medium, and long term. Integrated reporting is a process founded on integrated thinking that results in a periodic integrated report by an organization about value creation over time and related communications regarding aspects of value creation.

Draft Integrated Reporting Framework, issued by the International Integrated Reporting Council [4] on April 16, 2013, classifies capital into financial capital, manufactured capital, intellectual capital, human capital, social [5] and relationship capital, and natural capital [6].

An integrated report includes eight content elements that are fundamentally linked to each other and are not mutually exclusive [7]:

1. Organizational overview and external environment
2. Governance

3. Business model
4. Risks and opportunities
5. Strategy and resource allocation
6. Performance
7. Outlook
8. Basis of presentation

References

1. Adapted from United Nations Development Programme and Organisation for Economic Co-operation and Development.
2. Adapted from ISO - International Organization for Standardization.
3. More details are available at http://www.kering.com/en/sustainability/whatisepl. http://www.scope5.com/vision/.
4. Available at www.theiirc.org/consultationdraft2013.
5. For the definition of social capital, please see page 92.
6. For the definition of natural capital, please see page 72.
7. Adapted from integratedreporting.org.

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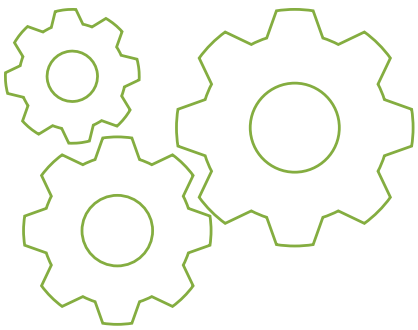


JOINT IMPLEMENTATION MECHANISM

The joint implementation mechanism, defined in Article 6 of the Kyoto Protocol [1], allows a country with an emission reduction or limitation commitment under the Kyoto Protocol (Annex B Party- most Organisation for Economic Cooperation and Development countries and countries with economies in transition) to earn emission-reduction units (ERUs) from an emission reduction or emission-removal project in another Annex B Party, each equivalent to one tonne of CO_2, which can be counted towards meeting its Kyoto target.

The joint implementation offers Parties a flexible and cost-efficient means of fulfilling a part of their Kyoto commitments, while the host Party benefits from foreign investment and technology transfer [2].

JOINT FOREST MANAGEMENT

Joint Forest Management (JFM) is an approach and programme initiated in the context of the National Forest Policy of 1988, wherein state forest departments support local forest-dwelling and forest-fringe communities to protect and manage forests and share the costs and benefits from the forests with them.

The JFM programme will be monitored through certain indicators/benchmarks laid down by the forest department. The indicators for monitoring JFM have been divided into four categories: ecological, economic, social, and organizational/institutional [3].

References

1. For details on the Kyoto Protocol, please see page 52.
2. Adapted from the UNFCCC website.
3. For more information, visit https://ifs.nic.in/Dynamic/pdf/JFM%20handbook.pdf.

KYOTO PROTOCOL

The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change (UNFCCC), which commits its Parties by setting internationally binding emission-reduction targets. The Kyoto Protocol was adopted in Kyoto, Japan, on December 11, 1997 and entered into force on February 16, 2005. Countries included in Annex B of the Protocol agreed to reduce their anthropogenic greenhouse gas (GHG) emissions {carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6)} by at least 5% below the 1990 levels in the commitment period 2008–2012.

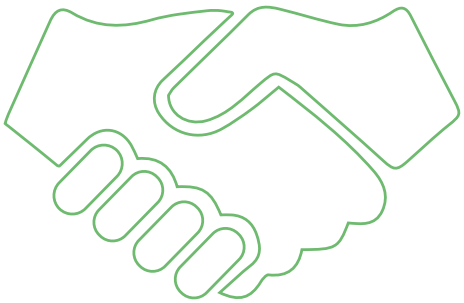
In Doha, Qatar, on December 8, 2012, the 'Doha Amendment to the Kyoto Protocol' was adopted. The amendment includes: (i) New commitments for Annex

I Parties to the Kyoto Protocol who agreed to take on commitments in a second commitment period from January 1, 2013 to December 31, 2020; (ii) A revised list of GHGs to be reported on by Parties in the second commitment period, etc.

Under the Protocol, countries must meet their targets primarily through national measures. However, the Protocol also offers them an additional means to meet their targets by way of three market-based mechanisms. The Kyoto mechanisms are: (1) International Emissions Trading, (2) Clean Development Mechanism (CDM), and (3) Joint Implementation (JI) [1].

KPIs

Key performance indicators (KPIs) are the critical (key) indicators of progress towards an intended result. In the case of sustainability, they enable businesses to articulate how their sustainability goals will be measured and also measure how effectively they are achieving these goals.



KIGALI AGREEMENT

The Kigali Agreement, an amendment to Montreal Protocol, was agreed upon by 197 nations during the 28th meeting of the Parties to the Montreal Protocol, in Kigali, the capital city of a tiny African country, Rwanda, on October 15, 2016. As per the agreement, these countries are expected to reduce the manufacturing and use of hydrofluorocarbons (HFCs) by roughly 80%–85% from their respective baselines, till 2045. This phase down is expected to arrest the global average temperature rise up to 0.5 °C by 2100.

All the signatory countries were divided into three groups with different timelines [2]:

First group: It includes the richest countries, such as the US and those in the European Union (EU). They will freeze production and consumption of HFCs by 2018. They will reduce them to about 15% of the 2012 levels by 2036.

Second group: It includes countries such as China, Brazil, and all of Africa, etc. They will freeze HFC use by 2024 and cut it to 20% of the 2021 levels by 2045.

Third group: It includes countries such as India, Pakistan, Iran, Saudi Arabia, etc. They will be freezing HFC use by 2028 and reducing it to about 15% of the 2025 levels by 2047.

References

1. Adapted from the UNFCCC website.
2. For more information, visit https://ec.europa.eu/clima/news/eu-countries-trigger-entry-force-kigali-amendment-montreal-protocol_en.

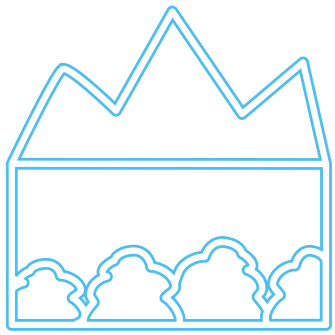
LIFE CYCLE ASSESSMENT

Life cycle assessment (LCA) is the 'cradle-to-grave' analysis of the environmental impact of any given product during its life cycle, that is, during its production, use, and disposal phases.

It provides a comprehensive evaluation of the upstream and downstream processes associated with the production (e.g., production of raw, auxiliary, and operating materials) and disposal (e.g., waste treatment). Environmental impacts refer to all relevant extractions from the environment (e.g., ores and crude oil), as well as emissions into the same (e.g., wastes and carbon dioxide). The main phases of LCA includes: Goal & Scope definition, inventory analysis, and impact assessment and interpretation.

The International Organisation for Standardisation (ISO) provides guidelines for conducting an LCA within the series ISO 14040 and 14044.

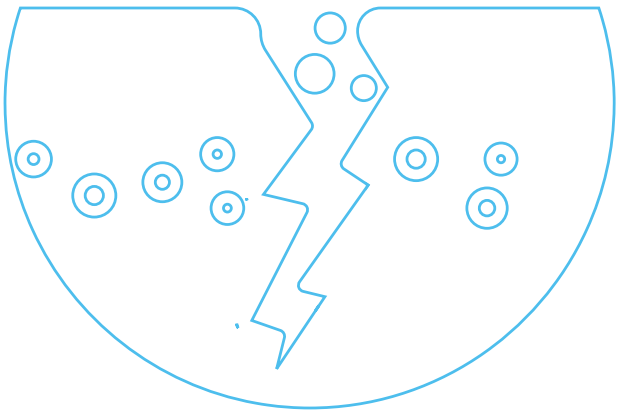
LAND-USE MANAGEMENT



Land-use management is the effective and efficient use of land to meet the changing human needs (agriculture, forestry, and conservation), while ensuring long-term socio-economic and ecological functions of the land.

Sustainable land management combines technologies, policies, and activities aimed at integrating socio-economic principles with environmental concerns, so as to simultaneously:

- Maintain and enhance production (productivity).
- Reduce the level of production risk, and enhance the soil capacity to buffer the degradation processes (stability/resilience).
- Protect the potential of natural resources and prevent degradation of soil and water quality (protection).
- Be economically viable (viability).
- Be socially acceptable and ensure access to the benefits from improved land management (acceptability/equity).



LEACHING

Leaching is a natural process by which water soluble substances (such as calcium, fertilizers, and pesticides) are washed out from soil or wastes. These chemicals, called leachates, cause pollution of surface and sub-surface water.

In the case of soil leaching due to excessive rainfall or irrigation, soil acidification can occur because of removal of too much nitrate content from the soil. It may alter the types of soil microbes, contaminate surface water, and cause a decline in the population of earthworms.

Leaching to the lower layers of soil may lead to groundwater contamination. A number of pesticides enter groundwater through the leaching process and pose serious health consequences ranging from birth defects to cancer.

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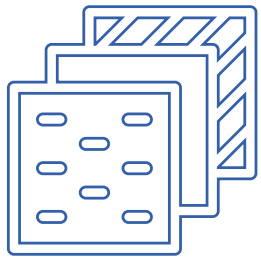


MATERIALITY

Materiality is a process by which an organization identifies sustainability issues that substantively affect its ability to create value over the short, medium, and long term. Material issues are environmental and social issues that have the greatest impact on the ability of the business to be profitable and grow while, at the same time, of greatest concern to all its stakeholders.

A combination of internal and external factors can be considered when assessing whether an issue is material. These include the organization's overall mission and competitive strategy, and the concerns expressed directly by stakeholders. Materiality can also be determined by broader societal expectations, and by the organization's influence on upstream entities such as suppliers, or downstream entities such as customers [1].

Material issues are typically derived from a materiality map, which plots the various identified sustainability issues using a 2X2 matrix, where one axis represents impact on the business and the other, stakeholder concerns. The issues that lie on the top right-hand corner are considered material. A materiality map of Tata Chemicals is given next as an example.

Issues important to Tata Chemicals

Courtesy: Tata Chemical's Sustainability Report 2014-15

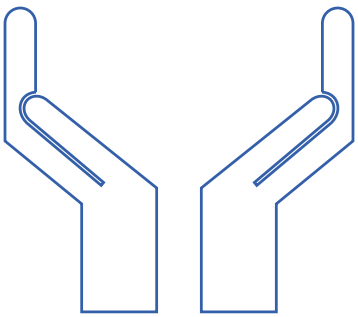
MINIMUM NATIONAL STANDARDS (MINAS)

An initiative of the Central Pollution Control Board (CPCB), Minimum National Standards (MINAS) is being developed for all types of industries with regards to their effluent discharge (water pollutants), emissions (air pollutants), noise levels, and solid waste. The proposed model for evolving industry-specific standards envisages the specifying limits of pollutants to protect the environment. The standards thus developed will be applicable to the concerned industries throughout the country. The present study in this series is on rubber products industries [2].

Example

Proposed MINAS for all categories of rubber product industries

Sl. No	Parameter	Tyre & Tube Industry	Moulded, Extruded/ Calendered, Fabricated industry	Latex-based Industry	Rubber Reclaim Industry
1	pH	6.5–8.5	6.5–8.5	6.5–8.5	6.5–8.5
2	BOD 3 day @ 27c*	NA	NA	100	NA
3	Suspended Solids	50	50	100	100



MITIGATION

In climate change parlance, as there is a direct relation between the global average temperatures and the concentration of greenhouse gases in the atmosphere, the key for the solution to the climate change problem rests in decreasing the amount of emissions released into the atmosphere and in reducing the current concentration of carbon dioxide (CO_2) by enhancing sinks (e.g., increasing the area of forests). Efforts to reduce emissions and enhance sinks are referred to as mitigation [3].

MASALA BOND

Masala bonds are rupee-denominated borrowings issued by Indian entities in overseas markets. The objective of masala bonds is to fund infrastructure projects in India, fuel internal growth via borrowings, and internationalize the Indian currency. Unlike dollar bonds, where the borrower takes the currency risk, masala bond makes the investors bear the risk. The first masala bond was released by the International Finance Corporation in November 2014, raising 1,000 crore bond to fund infrastructure projects in India.

And if the money is being raised by the issuer towards financing 'green' projects, that is, assets or business activities that are environment-friendly, the bond will be called Green Masala Bond. Such projects could be in the areas of renewable energy, clean transportation, and sustainable water management.

The International Finance Corporation (IFC) issued a 5-year Green Masala Bond on the London Stock Exchange, the first green bond issued in the offshore rupee markets. The bond raised ₹3.15 billion for private sector investments that address climate change in India [4–6].

Example

NTPC issued the first green masala bond worth ₹2,000 crore on the London Stock Exchange followed by the Indian Renewable Energy Development Agency Limited (IREDA).

References

1. Adapted from Integrated Reporting Framework and GRI standard.
2. For more information, visit http://cpcb.nic.in/crep/.
3. For more information, visit https://unfccc.int/topics/mitigation/the-big-picture/introduction-to-mitigation.
4. For more information, visit https://www.businesstoday.in/current/economy-politics/masala-bonds-norms-modi-govt-prevent-rupee-fall/story/282482.html.
5. For more information, visit https://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/ifc+issues+first+green+masala+bond+on+london+stock+exchange.
6. For more information, visit https://www.lseg.com/resources/media-centre/press-releases/ntpc-lists-world%E2%80%99s-first-green-masala-bond-indian-issuer-london-stock-exchange.

N

NATIONAL VOLUNTARY GUIDELINES ON SOCIAL, ENVIRONMENTAL AND ECONOMIC RESPONSIBILITIES OF BUSINESS

Currently undergoing a process of updation, the National Voluntary Guidelines on Social, Environmental and Economic Responsibilities of Business (NVGs) were released by the Ministry of Corporate Affairs (MCA) in July 2011. The national framework on Business Responsibility is essentially a set of nine principles that offer businesses an Indian understanding and approach to inculcating responsible business conduct. The NVGs serve as a guidance document for businesses of all size, ownership, sector, and geography to achieve the triple bottom line. In 2012, subsequent to the release of the NVGs the Securities and Exchange Board of India (SEBI), a market regulator, mandated the Annual Business Responsibility Reporting (ABRR), a reporting framework based on the NVGs [1–3].

NATIONAL AMBIENT AIR QUALITY STANDARDS

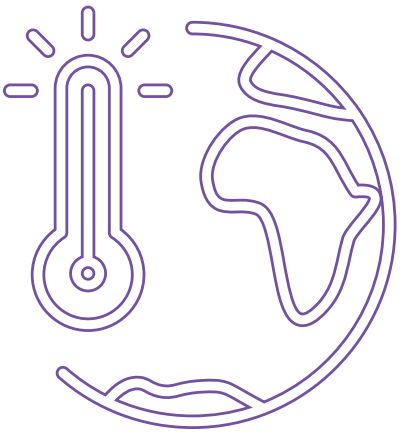
Ambient air quality refers to the condition or quality of the outdoor air. National Ambient Air Quality Standards are the standards for ambient air quality set by the Central Pollution Control Board (CPCB) that are applicable nationwide [4].

Example

Pollutant	Time Weighted Average	Concentration in Ambient Air		
		Industrial, Residential, Rural, and Other Areas	Ecologically Sensitive Area (notified by Central Government)	Methods of Measurement
Sulphur dioxide (SO_2), $\mu g/m^3$	Annual 24 hours	50 80	20 80	Improved Waste & Gaeke Ultraviolet Fluorescence
Nitrogen dioxide (NO_2), $\mu g/m^3$	Annual 24 hours	40 80	30 80	Modified Jacob & Hochheiser Chemiluminescence

NATURAL CAPITAL

Natural capital is a stock of renewable and non-renewable resources (e.g., plants, animals, air, water, soils, and minerals) that combine to yield a flow of direct and indirect benefits to businesses and society. The benefits provided by natural capital include clean air, food, water, energy, shelter, medicine, and the raw materials we use in the creation of products. It also provides less obvious benefits such as flood defence, climate regulation, pollination, and recreation [5, 6].



NATIONALLY DETERMINED CONTRIBUTIONS (NDCs)

Countries across the globe adopted a historic international climate agreement to hold the increase in the global average temperature to well below 2 °C, to pursue efforts to limit the increase to 1.5 °C, and to achieve net zero emissions in the second half of this century at the UN Framework Convention on Climate Change (UNFCCC), Conference of the Parties (COP21) in Paris in December 2015. In anticipation of this moment, countries publicly outlined what post-2020 climate actions they intended to take under the new international agreement known as their NDCs (Nationally Determined Contributions) [7, 8].

Example

In its NDC, India has pledged to improve the emissions intensity of its GDP by 33% to 35% by 2030 below the 2005 levels. It has also pledged to increase the share of non-fossil fuels-based electricity to 40% by 2030. It has agreed to enhance its forest cover which will absorb 2.5–3 billion tonnes of carbon dioxide (the main gas responsible for global warming) by 2030.

References

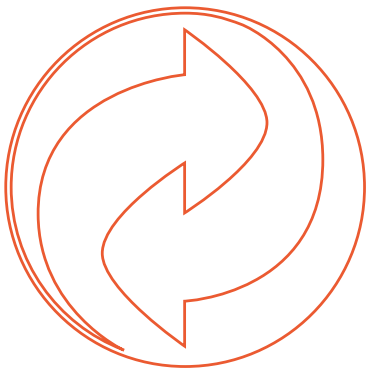
1. For more information, visit http://www.mca.gov.in/Ministry/pdf/DraftNationalGuidelines2018_20062018.pdf and http://www.mca.gov.in/MinistryV2/mcaguidelinesarchive.html.
2. For more information, visit https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/AR-2018/financials/pdf/Infosys_AR18_Business_reponsibility_Report.pdf.
3. For more information, visit https://assets.kpmg.com/content/dam/kpmg/in/pdf/2017/07/Business-Responsibility-Reporting.pdf.
4. For more information, visit http://cpcb.nic.in/air-quality-standard/
5. Adapted from Natural Capital Coalition (2012) and The Natural Capital Declaration (2012).
6. For examples of case studies, please visit https://naturalcapitalcoalition.org/protocol/protocol-application-program/.
7. For more information, visit https://unfccc.int/process/the-paris-agreement/nationally-determined-contributions/ndc-registry.
8. For more information, visit https://www.wri.org/indc-definition.

OFFSET

In generic terms, an offset refers to a consideration or amount that diminishes or balances the effect of an emission or consumption. It is principally used in the case of carbon emissions and water consumption.

Carbon offset is a reduction in emissions of carbon dioxide or greenhouse gases made in order to compensate for or to offset an emission made elsewhere. When the number of carbon offsets obtained is equal to an individual or organization's carbon footprint, that person or organization is carbon neutral.

Water offset refers to the projected demand of new water connections (or new development) being offset by on-site and off-site water conservation efforts. This terminology describes the mitigation of the water demand associated with new development [1–3].



OPEN-LOOP RECYCLING

Open-loop recycling is a recycling process that postpones disposal by converting manufactured goods into both new raw materials (which can be used as production inputs) and waste products. Open-loop material flow can be called ‘cradle-to-grave’ flow, as a major bulk of materials sooner or later contributes to the landfill disposal. Only a fraction of material is recycled indefinitely.

The difference between open-loop recycling and closed-loop recycling is that the latter is a more sustainable approach. Closed-loop recycling is a process through which a manufactured good is recycled back into itself or a similar product without significant degradation of its properties [4].

OHSAS 18001

OHSAS 18001 or Occupational Health and Safety Assessment Series (officially BS OHSAS 18001) is a British Standard for occupational health and safety management systems. Compliance with it enables organizations to demonstrate that they have a system in place for occupational health and safety.

References

1. For more information, visit https://www.emisoft.com/how-carbon-offsets-and-data-management-improve-sustainability/.
2. For more information, visit https://www.theguardian.com/environment/2011/sep/16/carbon-offset-projects-carbon-emissions.
3. For more information, visit www.allianceforwaterefficiency.org/water-offset-report-Jan-2015.aspx.
4. For example of a case study, visit https://www.sciencedirect.com/science/article/pii/S0921344915300100.

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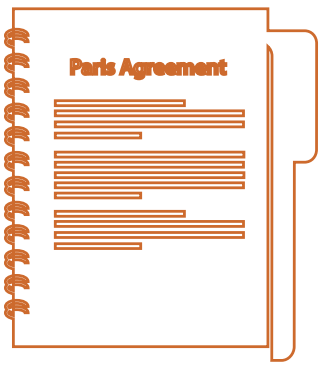
PARTICIPATORY RURAL APPRAISAL

Participatory rural appraisal (PRA) is an approach that aims to incorporate the knowledge and opinions of rural people into the planning and management of development projects and programmes [1].

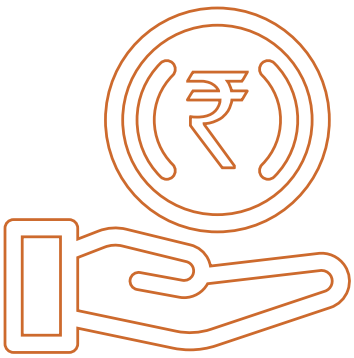
Example: Shikshagiri—Children's Voices on the Inputs for New Education Policy

"Education should be like a river, free for all, regardless of caste and gender. Anyone can access it", said panellists at the Ground Level Panel, feeding in inputs for the Draft New Education Policy to be announced by the Ministry of Human Resource Development (MHRD), Government of India. As the MHRD put the draft online and sought recommendations from the public, Praxis, along with its partners, came together to give the primary beneficiaries of this policy–children–a platform to input into the recommendation for this policy. You can find the complete report on http://www.shikshagiri.in/ [2].



PARIS AGREEMENT

At COP21 in Paris, on December 12, 2015, Parties to the UNFCCC reached a landmark agreement to combat climate change and to accelerate and intensify the actions and investments needed for a sustainable low-carbon future. The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping the global temperature rise this century well below 2 °C above the pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 °C [3].



PRINCIPLES OF RESPONSIBLE INVESTMENT

Responsible investment is an approach to investing that aims to incorporate environmental, social, and governance (ESG) factors into investment decisions, to better manage risk and generate sustainable, long-term returns [4].

Principle 1: We will incorporate ESG issues into investment analysis and decision-making processes.

Principle 2: We will be active owners and incorporate ESG issues into our ownership policies and practices.

Principle 3: We will seek appropriate disclosure on ESG issues by the entities in which we invest.

Principle 4: We will promote acceptance and implementation of the Principles within the investment industry.

Principle 5: We will work together to enhance our effectiveness in implementing the Principles.

Principle 6: We will each report on our activities and progress towards implementing the Principles.

Example

IDFC Alternatives is India's first signatory to the UN Principles for Responsible Investment (UNPRI), in the 'Investment Manager' category [5].

References

1. For more information, visit 1994_the_origins_and_practice_of_participatory_rural_appraisal.pdf.
2. For more information, visit praxisindia.org.
3. For more information, visit https://unfccc.int/process-and-meetings/the-paris-agreement/what-is-the-paris-agreement.
4. For more information, visit https://www.unpri.org/pri/what-are-the-principles-for-responsible-investment.
5. For more information, visit https://www.unpri.org/listed-equity/evaluating-esg-impact-on-project-costs/157.article.

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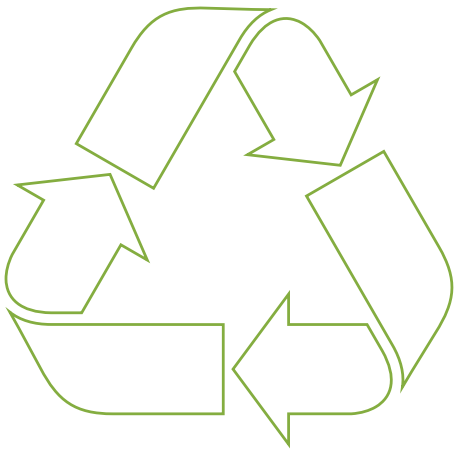


RECYCLABILITY INDEX

The recyclability index (R) is used to determine if it is economically feasible for any material to reacquire the properties it had in its virgin state (its purest form before being processed or shaped for a specific use). For example, recycled copper can achieve the same properties and qualities of copper of primary production. Recycled plastic, on the other hand, does not have the same qualities or properties as virgin plastic. Therefore, plastic has a lower recyclability index than copper.

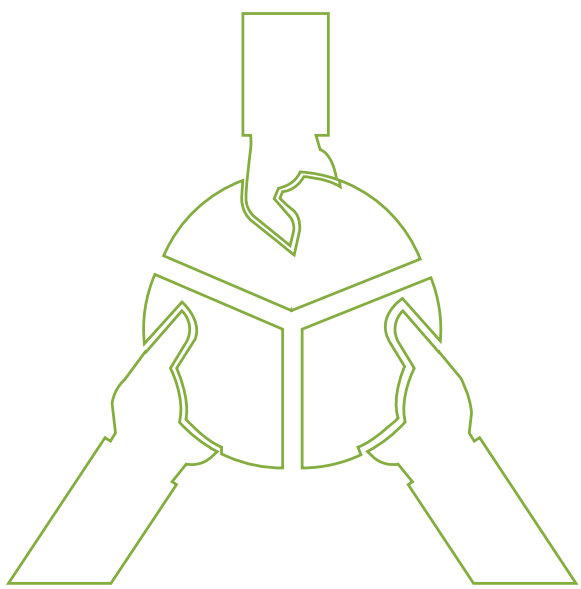
Example

Case of Fairphone 2 [1]

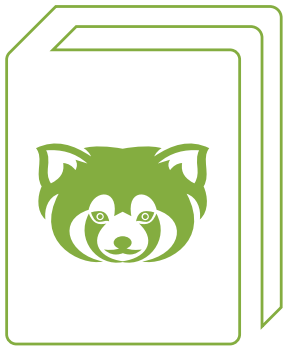
RESPONSIBLE BUSINESS CONDUCT

Responsible business conduct refers to the commitment of businesses to operating in an economically, socially, and environmentally sustainable manner while balancing the demands of shareholders and other interest groups. It is about managing risks and impacts that affect business' ability to meet its objectives.

Applicability is as per the nine principles laid down in NVGs [2].



RED DATA BOOK



The Red Data Book is a document which lists endangered and rare species including plants, animals, fungi as well as some local subspecies of a region of the state or country. This book helps us in providing complete information for research, studies, and also for monitoring the programmes on rare and endangered species and their habits. The International Union for Conservation of Nature, established in 1964, maintains the Red Data Book.

Currently, there are more than 93,500 species on the IUCN Red List, and more than 26,000 are threatened with extinction, including 41% of amphibians, 34% of conifers, 33% of reef building corals, 25% of mammals, and 13% of birds [3].

References

1. For more information, visit https://www.fairphone.com/en/2017/02/27/recyclable-fairphone-2/.
2. For more information, visit http://www.mca.gov.in/Ministry/latestnews/National_Voluntary_Guidelines_2011_12jul2011.pdf.
3. Adapted from https://www.iucnredlist.org/.

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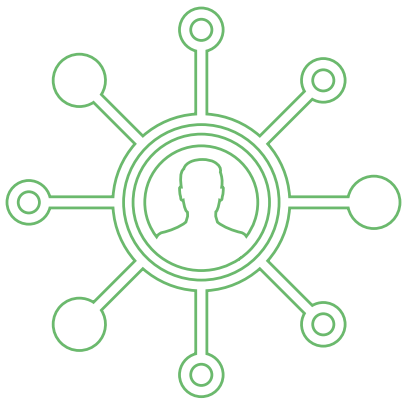


STAKEHOLDER

A stakeholder is either an entity or individual that can reasonably be expected to be significantly affected by the reporting organization's activities, products, and services, or whose actions can reasonably be expected to affect the ability of the organization to successfully implement its strategies and achieve its objectives [1].

Note 1: Stakeholders include entities or individuals whose rights under the law or international conventions provide them with legitimate claims vis-à-vis the organization.

Note 2: Stakeholders can include those who are invested in the organization (such as employees and shareholders), as well as those who have other relationships with the organization (such as other workers who are not employees, suppliers, vulnerable groups, local communities, and NGOs or other civil society organizations, amongst others).

Internal Stakeholders

- Employees
- Owners
- Managers

External Stakeholders

- Suppliers
- Customers
- Government
- Society

Source: https://www.researchgate.net/figure/Example-stakeholder-roles-for-a-requirements-management-system_fig1_265267251

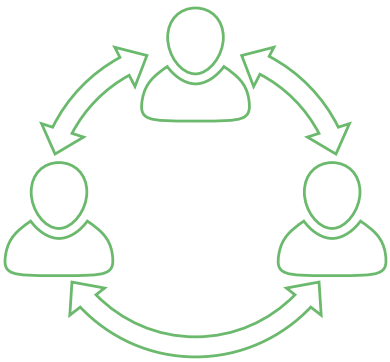
SOCIALLY RESPONSIBLE INVESTMENT

Socially responsible investment is an approach to investing that aims to incorporate environmental, social, and governance (ESG) factors into investment decisions, to better manage risk and generate sustainable, long-term returns. It is an investment that is dependent on the nature of the business the company conducts. Common themes for socially responsible investments include avoiding investment in companies that produce or sell addictive substances or activities (such as alcohol, gambling, and tobacco) and seeking out companies engaged in social justice, environmental sustainability, and alternative energy/clean technology efforts. Socially responsible investments can be made in individual companies or through a socially conscious mutual fund or exchange-traded fund (ETF).

Example

Vanguard FTSE Social Index, Eventide Gilead, etc. [2].

Tata Ethical Fund in India [3].



SOCIAL CAPITAL

Social capital is defined as the institutions and the relationships within and between communities, groups of stakeholders and other networks, and the ability to share information to enhance individual and collective well-being [4]. Social and relationship capital includes:

- Shared norms, and common values and behaviours
- Key stakeholder relationships, and the trust and willingness to engage that an organization has developed and strives to build and protect with external stakeholders
- Intangibles associated with the brand and reputation that an organization has developed
- An organization's social licence to operate

SUSTAINABLE DEVELOPMENT GOALS

Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

The Sustainable Development Goals (SDGs) are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. These 17 Goals came into effect in January 2016 and are interconnected—often the key to success on one will involve tackling issues more commonly associated with another.

Source: The Brundtland Report 'Our Common Future' and UNDP

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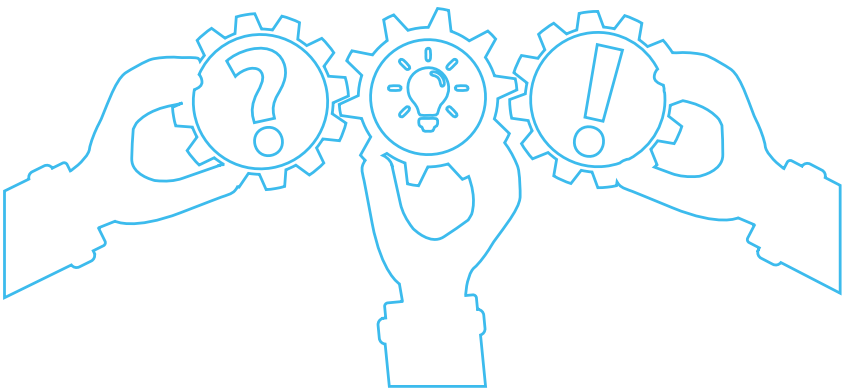
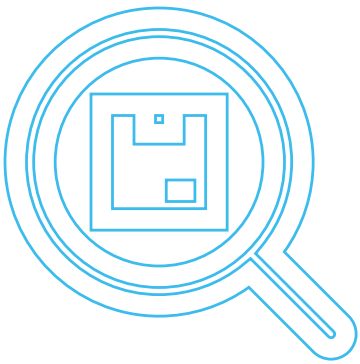
1. For more information, visit https://www.globalreporting.org/standards/media/1913/gri-standards-glossary.pdf.
2. For more information, visit https://www.kiplinger.com/article/investing/T041-C009-S002-7-great-socially-responsible-mutual-funds.html.
3. For more information, visit http://www.tatamutualfund.com/our-funds/equity/sectoral/tata-ethical-fund.
4. Adapted from the International Integrated Reporting Framework.

T



TRANSPARENCY

Transparency in the sustainability context is all about being open about decisions and activities that affect society, the environment, the economy and the willingness of businesses to communicate information in a clear, accurate, honest, timely, and complete manner.

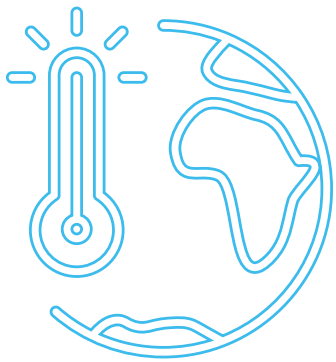


TRACEABILITY

Traceability, as the name suggests, is the capability to trace something. Traceability is applicable to measurement, supply chain, software development, healthcare, security, and so on [1].

Supply chain traceability—the process of identifying and tracking a product or material's path from raw material to finished good—is a useful tool to gain and convey information about the components of products, parts, and materials, as well as their transformation throughout the value chain.

Traceability can verify certain sustainability claims about commodities and products, helping ensure good practices and respect for people and the environment in supply chains.



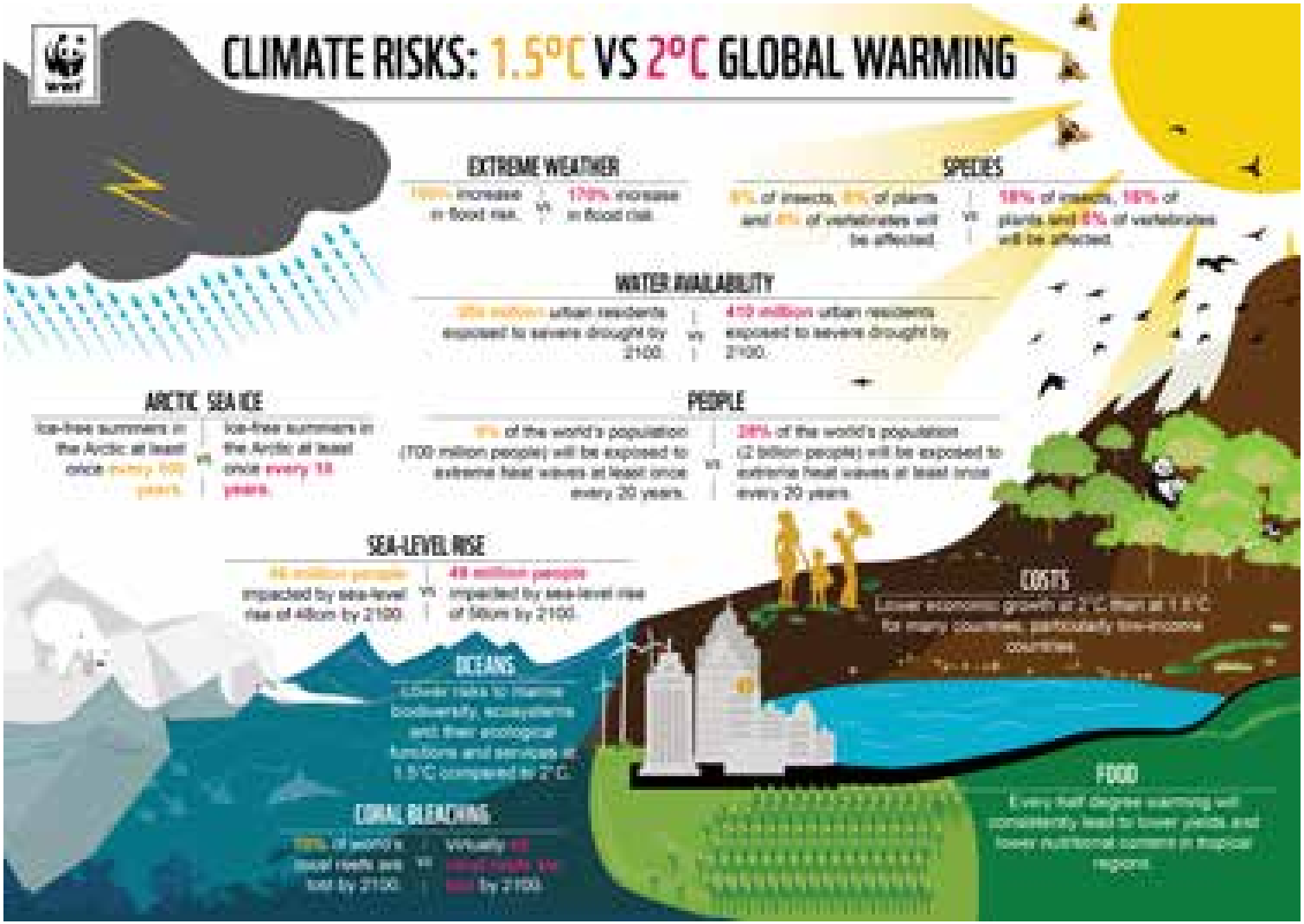
TWO DEGREE

Two degree represents change in the Earth's average temperature by 2 °C. For a planet like the Earth, an average increase of 1 °C across its entire surface means huge changes in climatic extremes. With the current rate of GHG emissions, UN Intergovernmental Panel on Climate Change (IPCC) has predicted that the planet will reach the crucial threshold of 1.5 °C above the pre-industrial levels by 2030, precipitating the risk of extreme drought, wildfires, floods, and food shortages for hundreds of millions of people.

Hence, in the Paris Accord, 197 countries agreed to the goal of holding global temperatures 'well below' 2 °C above the pre-industrial levels and to pursue efforts to limit it to 1.5 °C.

Reference

1. Adapted from https://www.bsr.org/en/our-insights/blog-view/how-does-traceability-advance-sustainability-in-global-supply-chains.



Source: UNFCCC and WWF

U

UNGC

The United Nations Global Compact (UNGC) is a United Nations initiative to encourage businesses worldwide to adopt sustainable and socially responsible policies, and to report on their implementation. The UNGC is a principle-based framework for businesses, stating ten principles in the areas of human rights, labour, the environment, and anti-corruption. Under the Global Compact, companies are brought together with the UN agencies, labour groups, and civil society [1].

The Ten Principles of the UNGC are derived from:

- Universal Declaration of Human Rights
- International Labour Organization's Declaration on Fundamental Principles and Rights at Work
- Rio Declaration on Environment and Development
- United Nations Convention against Corruption

UNFCCC

The United Nations Framework Convention on Climate Change (UNFCCC) is one of the three Rio Conventions (on Biodiversity, Climate Change, and Desertification) derived directly from the 1992 Earth Summit.

The UNFCCC sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change. Its objectives are to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system, within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner.

Currently, there are 197 Parties (196 States and 1 regional economic integration organization) to the UNFCCC.

Some of the platforms developed and supported by the UNFCCC are CDM, NAZCA, REDD+, Public NAMA, and Climate Neutral Now [2].

References

1. For more information, visit https://www.unglobalcompact.org/what-is-gc/mission/principles.
2. For more information, visit https://unfccc.int/.

V

VALUE CHAIN

A value chain is a model used to describe the process by which businesses receive raw materials, add value to the raw materials through various processes to create a finished product, and then sell the finished product to customers. Companies conduct value-chain analysis by looking at every production step required to create a product and identifying ways to increase the efficiency of the chain.

VULNERABLE AND MARGINALIZED GROUPS

Vulnerable and marginalized groups are a group of individuals who are unable to realize their rights or enjoy opportunities due to adverse physical, mental, social, economic, cultural, political, geographic, or health circumstances. These groups in India can be identified on the basis, inter alia, of the following:

- Gender and transgender (women, girls et al.)
- Age (children, elderly et al.)
- Descent/identity/ethnicity (caste, religion, scheduled castes, scheduled tribes et al.)
- Occupation (displaced, landless small/marginal farmers, migrant workers et al.)
- Persons with disability
- Belief: political or religious

W

WASTE TO WEALTH

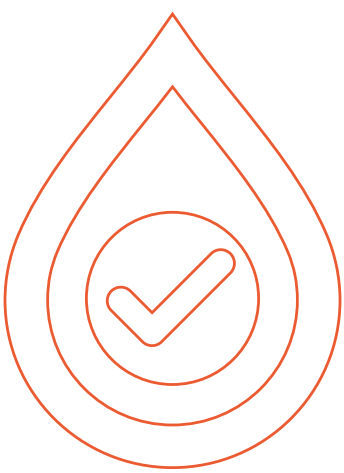
'Waste to Wealth' is a concept to witness the conversion of waste from an exhausted product to a valuable utility. According to an NDTV exclusive report (May 2017), over 75% of the waste we generate is recyclable but we, in India, recycle just 30%.

The following are a few recycling facts:

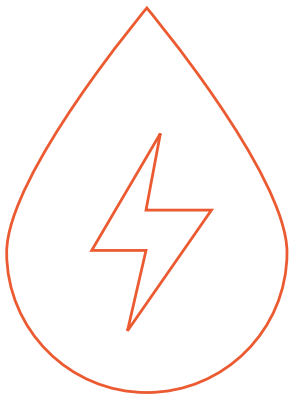
- Recycling 5 PET bottles produces enough fibre for making one t-shirt.
- Recycling a single aluminium can saves enough energy to run a TV for three hours, or run a 100 W light bulb for four hours.
- Plastic bags and garbage thrown into our oceans kill more than 1,100,000 marine mammals, fish, and sea creatures every year.
- Jambulingam Street in Chennai was one of India's first plastic roads built in 2002.
- In 2015-16, the National Rural Road Development Agency laid around 7,500 km of roads using plastic waste.

WATER QUALITY CRITERIA

Water quality is defined as 'those physical, chemical or biological characteristics' of water by which the user evaluates the acceptability of water. For example, drinking water should be pure, wholesome, and potable. Similarly, for irrigation dissolved solids and toxicants are important, for outdoor bathing pathogens are important and hence, water quality is controlled accordingly. Textiles, paper, brewing, and dozens of other industries using water have their specific water-quality needs [1, 2].



WATER–ENERGY NEXUS



Water and energy are two interdependent resources creating a challenging situation that cuts across all sectors and geographies. Scarcer water creates new challenges for energy supply because coal, oil, gas, and electricity production can require massive amounts of freshwater. On the other hand, more and more energy is needed for energy-intensive water-treatment options, such as seawater desalination, to meet their growing demand for water.

Micro Irrigation Systems (MIS) by Jain Irrigation Systems Ltd. (JISL) is one such example which has been proved beneficial for both the farmer community and the company. JISL's MIS are enabling farmers to switch from flood irrigation to more water- and energy-efficient systems such as drip and sprinkler which yield water savings of over 30%–65% over traditional surface irrigation systems. As a result, with the use of MIS, the annual yield increases between 60%–130%, and income increases between $500 and $6,000 for farmers [3].

WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)

Waste Electrical and Electronic Equipment (WEEE) is end-of-life electrical and electronic equipment and covers virtually everything with a plug or battery. It is classed as either household or non-household WEEE.

The EC introduced the WEEE Directive in 2002 to address the environmental impacts of unwanted electrical and electronic equipment at end-of-life disposal.

It is a 'producer responsibility' directive which means that producers are required to take financial responsibility for the environmental impact of the products that they place on the market, specifically when those products become waste [4].

The WEEE Regulations (2013) became law in the UK on January 1, 2014 and replaced the WEEE Regulations (2006) [5,6].

References

1. For more information, visit http://cpcb.nic.in/openpdffile.php?id=UmVwb3J0RmlsZXMvTmV3SXRlbV8xMTZfR3VpZGVsaW5lc29mIHdhdGVycXVhbGl0eW1vbml0b3JpbmdfMzEuMDcuMDgucGRm.
2. For more information, visit http://cpcb.nic.in/water-quality-criteria/.
3. For more information, visit https://www.ifc.org/wps/wcm/connect/f6fdcd8047e252ca9d05fd299ede9589/Jain%2BTemporary.pdf?MOD=AJPERES.
4. For more information, visit http://www.repic.co.uk/What-is-WEEE
5. For more information, visit https://www.complydirect.com/services/weee-compliance/weee-explained/.
6. For more information, visit https://www.complydirect.com/media/1603/weee-knowledge-bank-2015-200315-3.pdf.

Z

ZERO LIQUID DISCHARGE

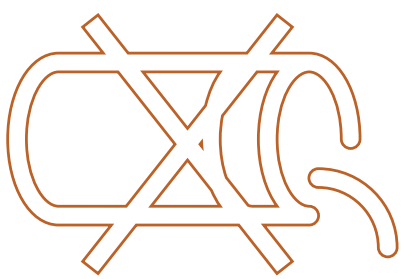
Zero liquid discharge (ZLD) refers to the installation of facilities and systems which will enable industrial effluent for absolute recycling of permeate and converting solute (dissolved organic and inorganic compounds/salts) into residue in the solid form by adopting the method of concentration and thermal evaporation. ZLD will be recognized and certified based on two broad parameters, that is, water consumption versus wastewater re-used or recycled (permeate) and corresponding solids recovered (per cent total dissolved/suspended solids in effluents) [1].

Example

In 2004, Dr Reddy's became one of the first companies in India to ensure ZLD by treating and recycling all wastewater, leaving zero discharge at the end of the treatment cycle. In 2017, the company achieved another important milestone: zero hazardous waste to landfill across all manufacturing units in India.

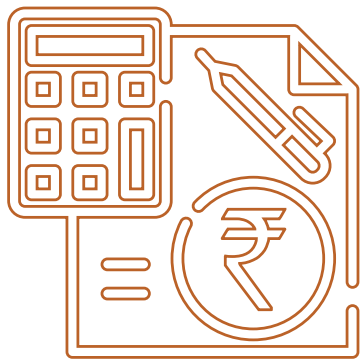
Textile

- Arvind Mills Limited, Khatraj
- Century Textiles Ltd, Jhagadia



Case study [2]

ZERO-BASED BUDGETING



In the sustainability context, zero-based budgeting aims to justify resource allocation in an individual/ organization budget scheme, regardless of prior period budgets.
It is not based on historical data and begins each budget period afresh.

References

1. Adapted from CPCB - Guidelines on Techno – Economic Feasibility of Implementation of Zero Liquid Discharge (ZLD) for Water Polluting Industries.
2. For more information, visit http://www.gpcb-kp.in/live/hrdpmp/hrdpmaster/igep/content/e48745/e49028/e51431/e51468/SajidHussain.pdf.

ABOUT TERI COUNCIL FOR BUSINESS SUSTAINABILITY

TERI Council for Business Sustainability serves as the interface for TERI's research work to be connected to the corporate world. The Council is a network of Indian business leaders working on a shared commitment to mainstream sustainability in business strategies and practices. Set up in 2001, the Council recognizes and promotes sustainability leadership practices. Member companies of the Council include public and private sector, including MNCs – representing various industry sectors, sizes, and geographies. The activities of the Council are governed by an Executive Committee from amongst member companies.

The Council co-creates business solutions with members to address national sustainability challenges; curates common interest forums of member companies – with participation of Board members and Chief Sustainability Officers; undertakes policy advocacy through Thought Leadership reports and industry dialogues; and builds capacity through trainings, Management Development Programs, learning visits, webinars, conferences etc. With individual member companies, the Council provides a range of tailor-made advisory services. These comprise sustainability strategy development, performance assessment and improvements, capacity building and showcasing best practices in national and international forums.

For more information, visit: http://cbs.teriin.org/

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